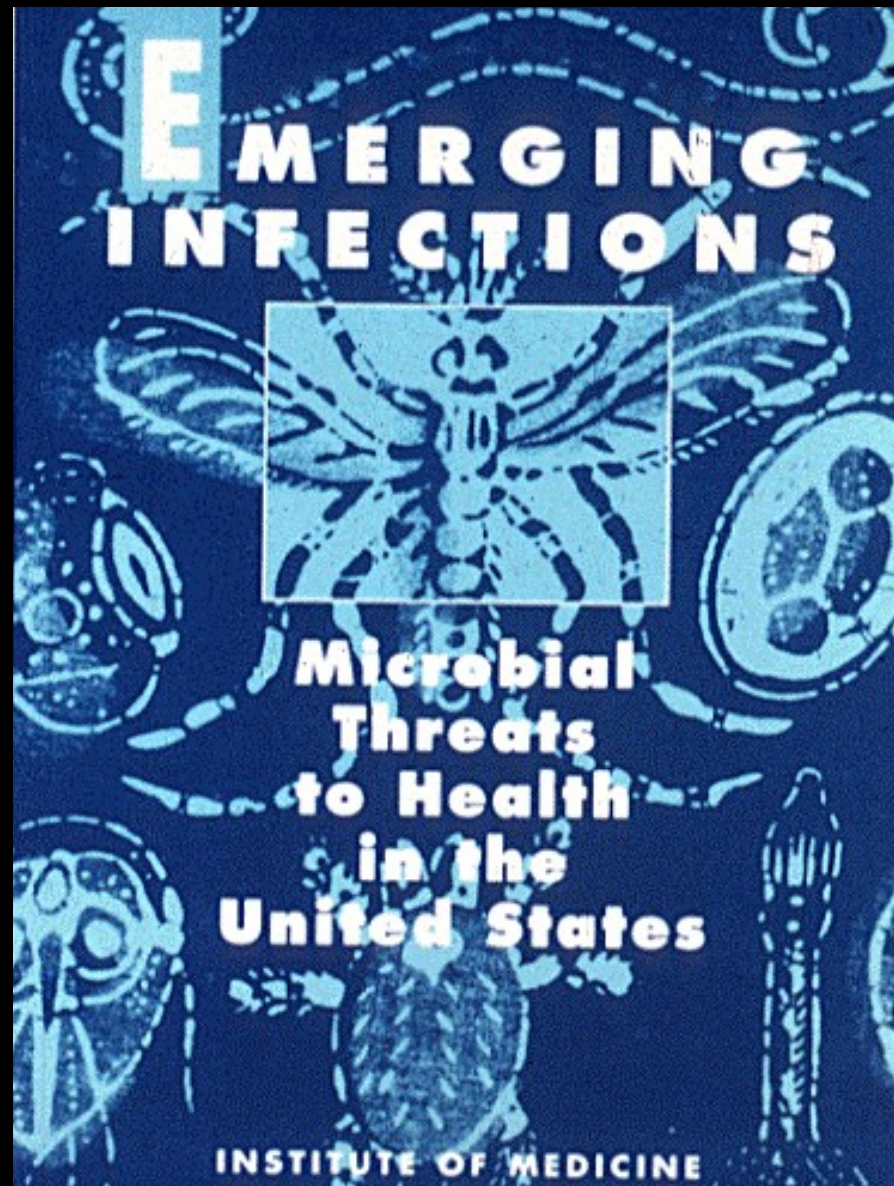




*An Overview of the
DoD Global Emerging Infections System (DoD-
GEIS)
for the*

*Armed Forces Epidemiology Board:
Prelude to an Annual External Review*

**COL Patrick W. Kelley, MD, DrPH
Director, DoD-Global Emerging
Infections Surveillance and Response
System**



The Start of it All

Presidential Decision Directive NSTC-7



June 1996

“... the national and international system of infectious disease surveillance, prevention, and response is *inadequate to protect the health of United States citizens* from emerging infectious diseases.”

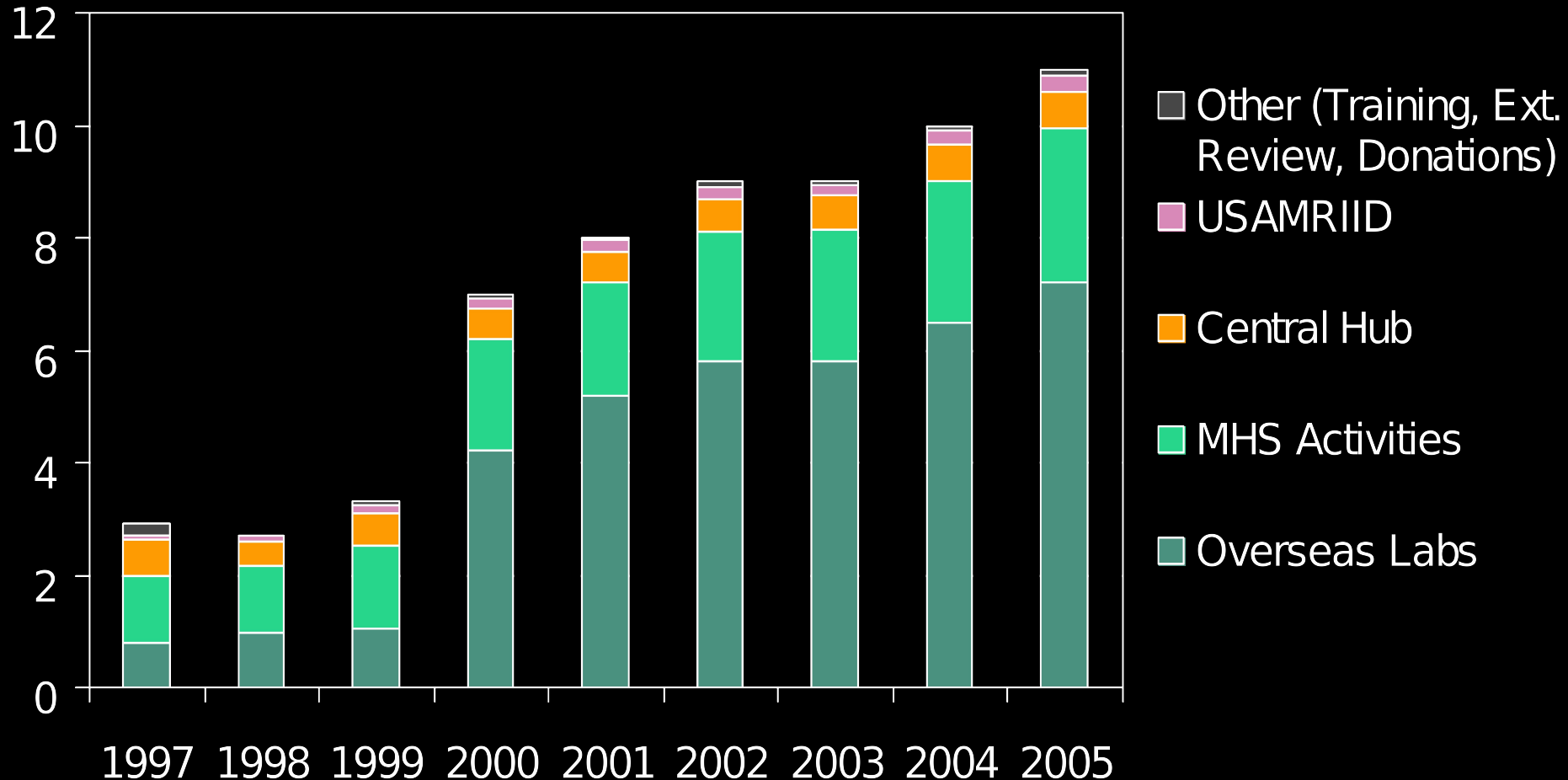
“The *mission of the DoD will be expanded* to include support of global surveillance, training, research, and response to emerging infectious disease threats.”

“DoD will strengthen its global disease reduction efforts through: *centralized coordination; improved preventive health programs and epidemiological capabilities*; and enhanced involvement with *military treatment facilities and United States and overseas laboratories*.”

DoD-GEIS Mission Customers/Stakeholders

- U.S citizens - #1 by Presidential Decision Directive
- U.S. military forces and organizations
- Other elements of the national security community
 - White House OSTP and NSC
 - State Department
 - Department of Health and Human Services
 - Department of Commerce
 - Department of Agriculture
- CINC engagement programs
- Drug and vaccine producers
- WHO and the international health community

Past and Projected GEIS P8 DHP Budget in Millions of Dollars (excludes non-P8 CINC and most ESSENCE funds)



DoD Assets for Surveillance and Response: The Network of DoD Service Hubs and Overseas Medical Research Units

- Service-Specific Surveillance Centers (DoD beneficiary focus)



Key Responsibilities of the GEIS Central Hub



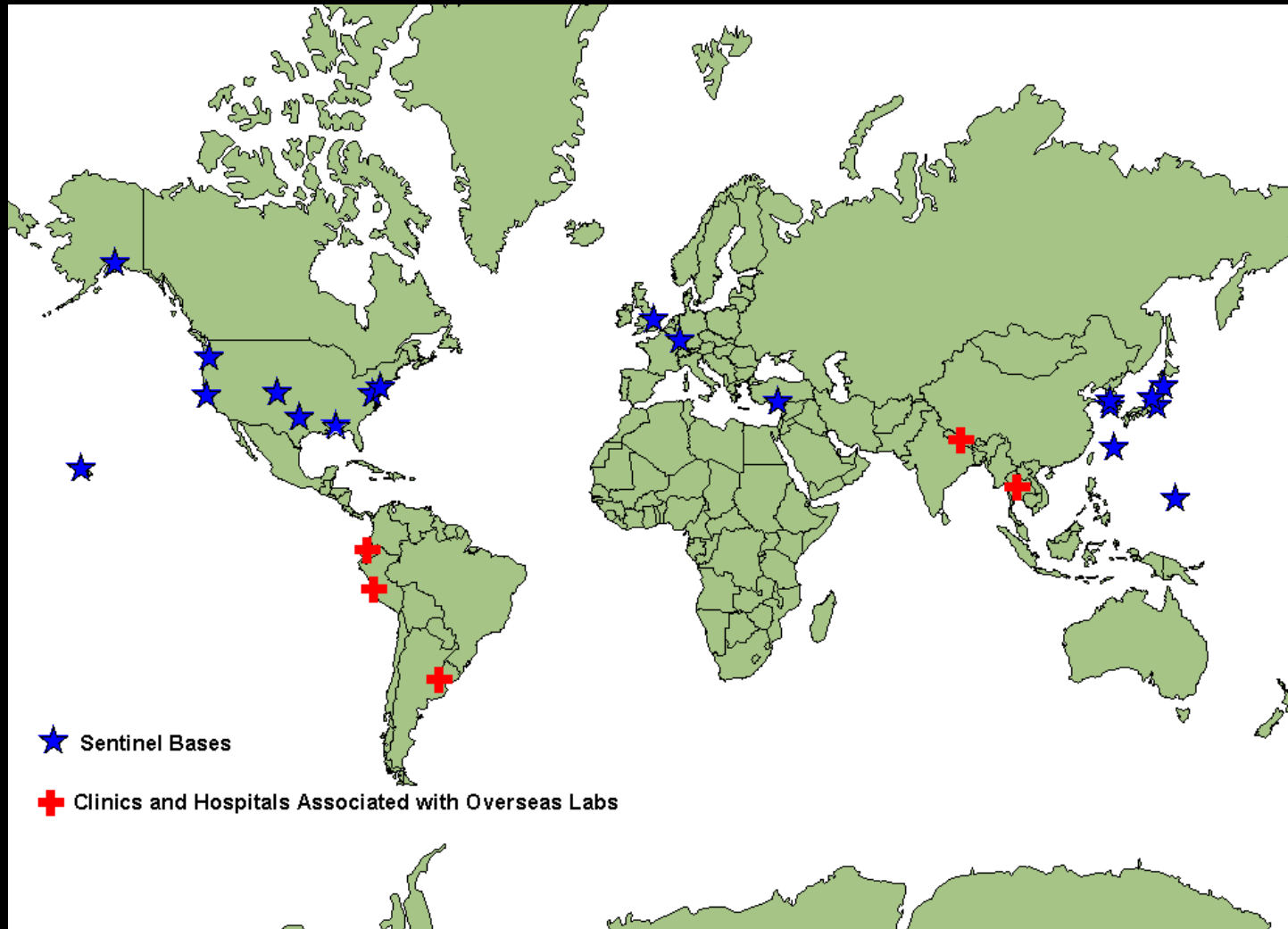
- Develop and monitor execution of Strategic Plan
- Review annual requests for funding and prioritize support
- Coordinate distribution of funds
- Review and publish annual reports from funded agencies
- Assist with obtaining supplementary resources
- Represent GEIS to higher headquarters, and other agencies
- Manage public and professional awareness initiatives

Three-Fold Role of DoD Overseas Labs in DoD-GEIS

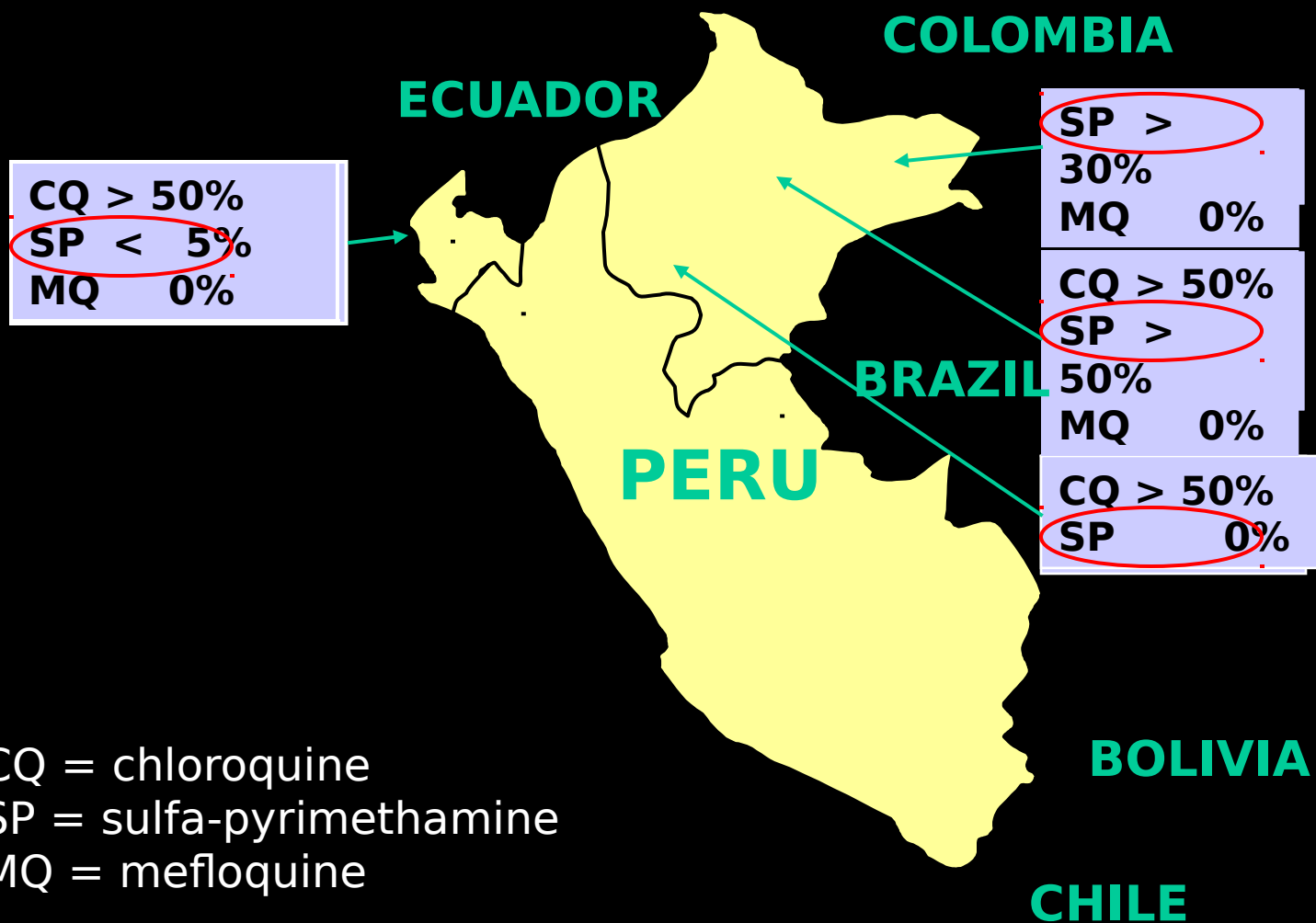


- *Global Surveillance* - Surveillance for influenza, drug-resistant malaria, drug-resistant enteric organisms, and unexplained fevers
- *Global Response* - Uniquely capable, permanent, multi-disciplinary model platforms from which to stage and support a wide range of field, laboratory, human, and veterinary health investigations
- *Building Global Capacity* - Focal points for leveraging local capacity through training and infrastructure building

2000-2001 AFIERA Sentinel Influenza Surveillance Sites



Regional Variation in RII/RIII Drug Resistance against *P. falciparum*, Peru, FY 2000



Increasing Antibiotic Resistance among *Campylobacter* Isolates, Lima, 1993-2000



Year(s)	N	Azith.	% Resistant			Eryth.
			Cipro.	Nal.Acid		
1993-1995	33	0	36.4	27.3		3.0
1996-1997	45	0	35.6	31.1		2.2
1998	35	0	36.7	40.4		6.0
1999*		37	ND	45.9	48.6	
13.5						
2000**	72	1.4	62.5	68.1		2.8

* FY99 GEIS Data

** FY00 GEIS Data

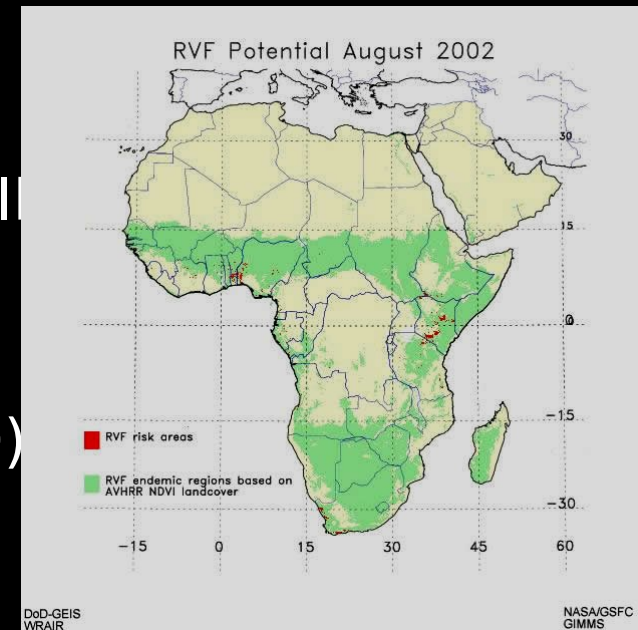
Three-Fold Role of DoD Overseas Labs in the DoD Global Emerging Infections System

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DoD-GEIS network contributions to the 1997-98 East Africa Rift Valley Fever Outbreak Response



- Field epidemiologic studies (USAMRU-K)
- Field entomologic studies (USAMRU-K)
- Inter-lab entomologic consultation (AFRI)
- RVF assays sent to KEMRI (NAMRU-3)
- 40 doses of RVF IND vaccine (USAMRIID)
- GEIS-NASA Remote Sensing Predictive Models



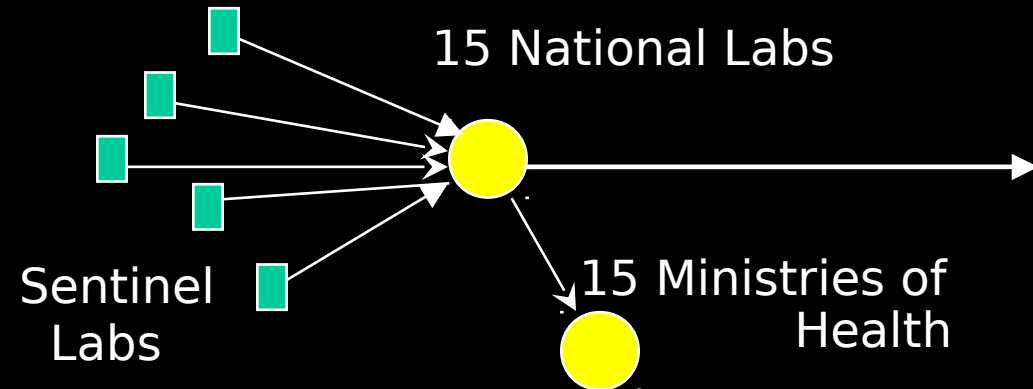
Challenges to Implementing the DoD-GEIS Overseas Lab Program

- Superimposed on a research infrastructure
- Multiple stakeholders (new and old) and expectations
- Variable host country relationships
- Information control and timely reporting
- Unproven surveillance methodologies for EIDs
- Suboptimal mix of existing scientific personnel
- Shortage of military public health personnel for assignment
- Authority and responsibility in response situations

Three-Fold Role of DoD Overseas Labs in the DoD Global Emerging Infections System

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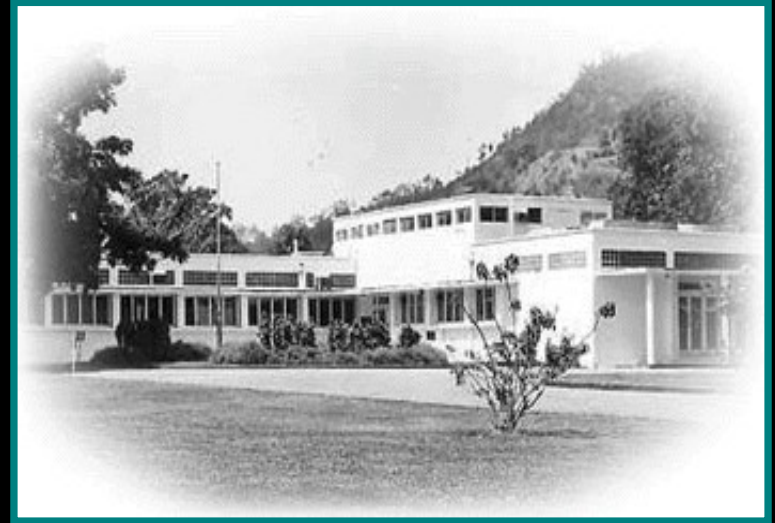
Information Flow in SOUTHCOM-funded Lab-based Hierarchical Public Health Surveillance in the Caribbean



145 computers, >250 people trained in use of CDC PHLIS software

Participating Countries

Jamaica	Belize
Dominican Republic	Haiti
Dominica	St. Vincent
Barbados	Grenada
Trinidad	Guyana
St. Lucia	Bahamas
Suriname	Antigua
	St. Kitts



Caribbean
Epidemiology
Center

www.carec.org

Some Shortfalls in Surveillance Being Corrected Within the Military Health System



- Lack of a tri-service active duty comprehensive mortality surveillance system
- Lack of at least a “virtual” DoD public health laboratory system
 - Ensure that public health issues are recognized
 - Improve coordination of resources and elimination of diagnostic gaps
- Weak laboratory-based reporting of surveillance data
 - Compensate for nonspecific clinical diagnoses
 - Compensate for underreporting by clinicians
 - Provide surveillance for antibiotic resistance patterns
- Weak MHS outbreak alert and response

ESSENCE: The Electronic Surveillance System for the Early Notification of Community-based Epidemics: Background

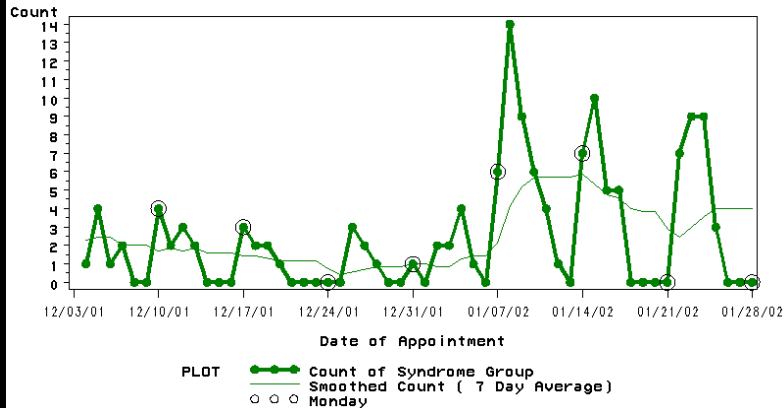
- Began receiving Ambulatory Data System (ADS) information from military treatment facilities (MTF) in December 99 for the National Capital Area (NCA)
- 7 syndrome groups based on ICD-9-CM codes
- Expanded to all MTFs that submit data to ADS in September 2001
 - 121 Army, 110 Navy, 80 Air Force and 2 Coast Guard installations monitored – grouped into 179 geographic clusters
- Information available via secure website
- Funding from GEIS, DARPA, and DTRA

Example of Concurrent Outbreaks

Syndrome Counts for the ABERDEENPG Area

Syndrome Group = GI

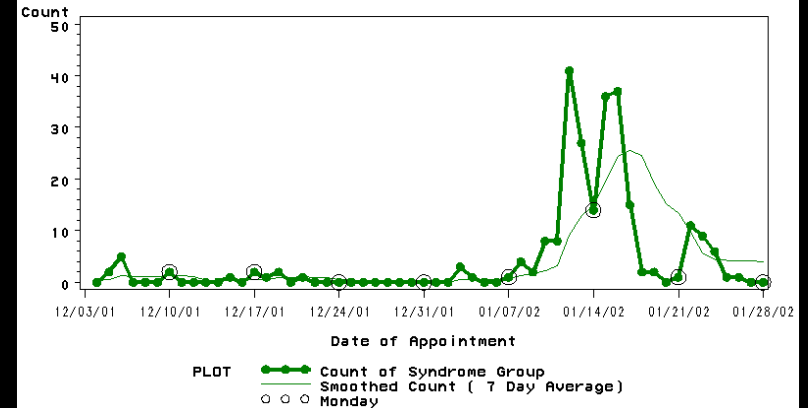
Current as of Monday, 28JAN02 at 04:45 hrs



Syndrome Counts for the MCRDSANDIEGO Area

Syndrome Group = GI

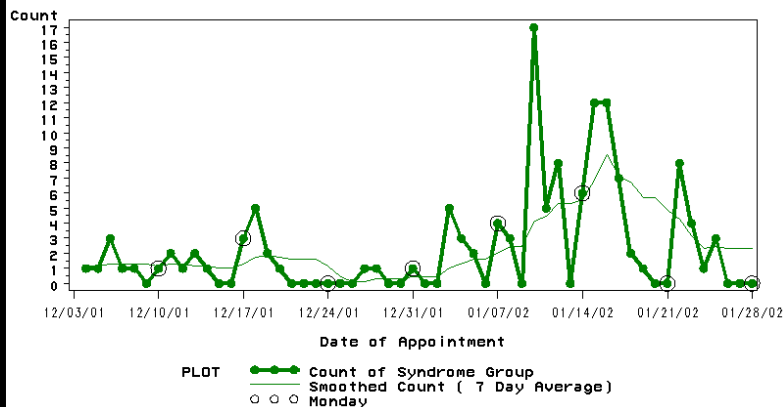
Current as of Monday, 28JAN02 at 04:45 hrs



Syndrome Counts for the FTMONMOUTH Area

Syndrome Group = GI

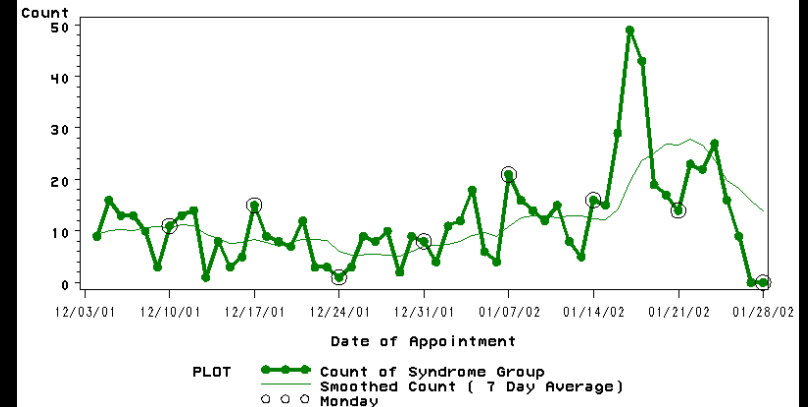
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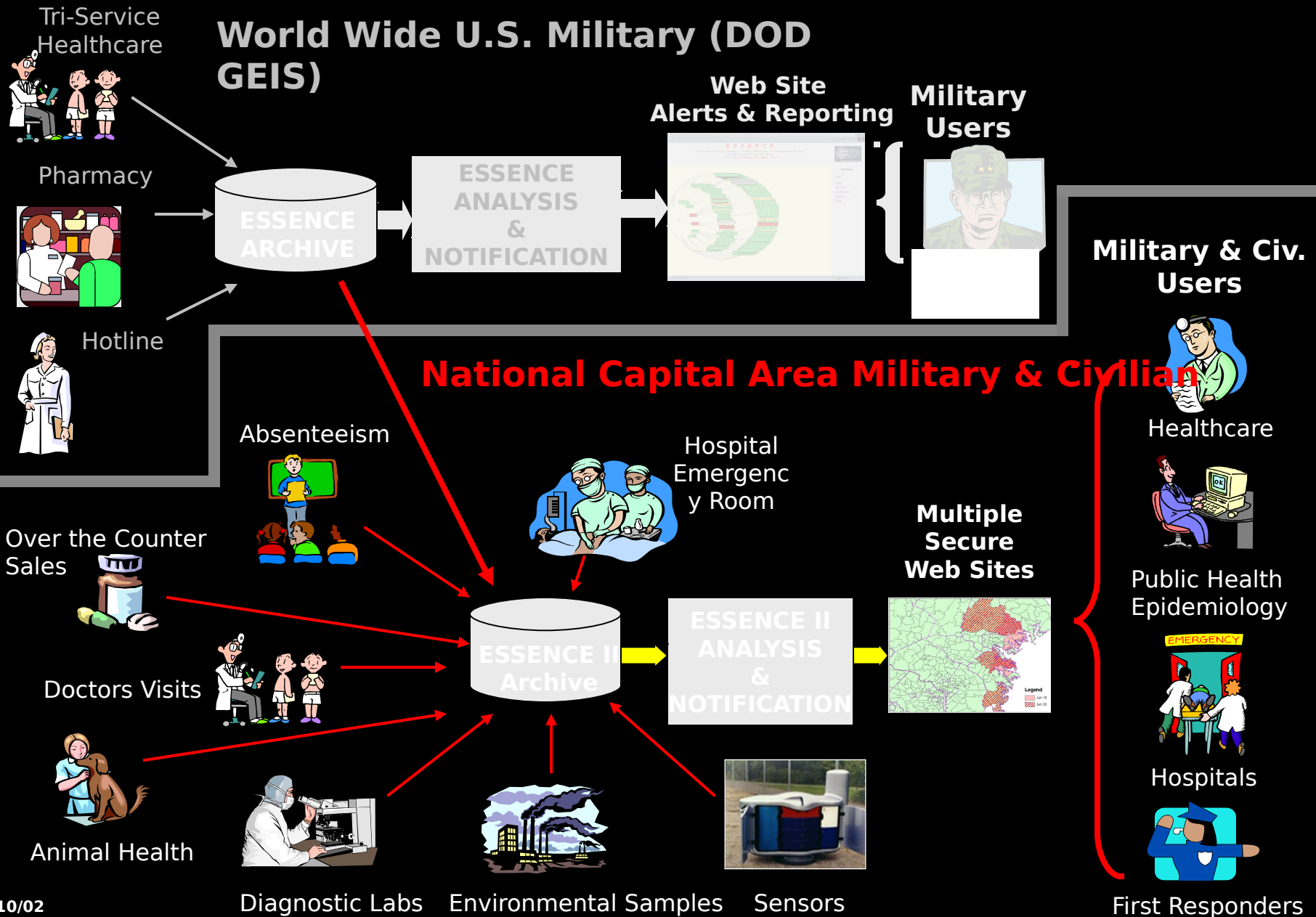
Syndrome Counts for the FTKNOX Area

Syndrome Group = GI

Current as of Monday, 28JAN02 at 04:45 hrs



ESSENCE II: A Civil-Military Partnership



Important Open Issues

- Potential integration with proposed DoD Health Surveillance Office
- Completion of Executive Agency, DoDD, & DoDI to formalize business processes
- Review of Virtual Public Health Lab at AFIP
- Supplementary funding for AFIP mortality surveillance
- Further development and implementation of ESSENCE
 - Improve data timeliness
 - Improve analytic algorithms
 - Expand data sources
 - Expand integration with surrounding civilian systems
 - Optimize response resources and procedures
- Expansion of antibiotic resistance surveillance

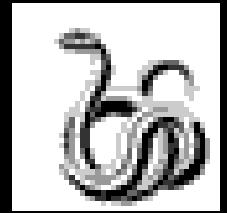
DoD-GEIS IOM Program Review 2001



Major Recommendations

- Support for GEIS and supporting facilities should be increased
- Additional dedicated overseas lab GEIS managers with
- Additional staff with applied epidemiology expertise
- Increase training of DoD and foreign public health workers
- Increase staffing to support training
- Increase collaborations with international organizations, and
- Improve internal and external communication
- Novel surveillance systems should be clearly evaluated

DoD-GEIS IOM Program Review 2001



Major Recommendations

- Clear, consistent mechanisms for providing guidance to GEIS management and channels for reporting of GEIS information to the DoD infrastructure
- Reposition management structures for enhanced effectiveness
- Management authority should be commensurate with management responsibility
- Consider revising the project and approval process
- Central hub should make more visits to the field
- Periodic external review every few years to ensure appropriate focus and goals

Considerations for External Review Process

- Familiarity with national and international emerging infectious disease priorities and strategies
- An appreciation for the Military Infectious Disease Research Program and the environment of the overseas labs
- An appreciation for the breadth and character of surveillance in the Military Health System
- Criteria for program evaluation

Considerations for External Review Process

- Stability of oversight – some consistency of reviewers and evaluation criteria over time
- Sufficient time and opportunity to understand the program at the 10+ agencies executing GEIS
- Definition of the intensity of the review
 - Document review
 - Formal subprogram briefings ?
 - Site visits ?
- Budget to support the external review